Factors Impacting Tree Growth in an Urban Forest

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Part I: Overview of Business

- The City of Des Moines Forestry Division is responsible for growing and maintaining the urban forest in the city. A healthy urban forest provides numerous benefits, including temperature regulation, water control and air purification. Maintenance of a healthy urban forest is critical for the well-being of city residents.

Part II: Job Specifics

- Effective maintenance of an urban forest is an impressive task. Trees need to be pruned and dead branches removed in order to protect public safety. In light of pest issues, such as the Emerald Ash Borer (EAD) or Dutch Elm disease, strategies are needed to combat or remove the threats. In addition, trees must be selected and planted to meet the needs of the growing city.

Part III: Introduce the Problem

- In order to effectively maintain an urban forest, the city forester must utilize various data and informational sources. While much is known about the growth of certain species in forested and other areas, there needs to be data collected on tree growth in urban areas. The goal of this project is monitor the growth of newly planted trees to assess how differences in locations and other conditions, such as soil temperature and pH, impact tree maturation. The ultimate goal is to collect data to assist the city in choosing appropriate species for growth in the urban forest.

Part IV: Background

- In order to investigate the factors that impact tree growth, students will need some basic information on tree biology and tree research. Students will also need to know how to collect the appropriate data regarding tree growth and how various factors, such as the amount of sunlight and water, can impact growth. As part of this project, students will need some basic information on the benefits of an urban forest, as well as information on how to identfication tree species commonly found in an urban forest.

Part V: Business Solution

- The ultimate goal is the help the city in its efforts to maintain a healthy urban forest. One of the issues that the division currently faces is due to tree loss. With additional data on factors impacting tree growth, the city can choose species that are more likely to survive in given environmental conditions.

Part VI: Student Solutions

- The students will be able to provide data to help city forestors and arborists plan, manage and maintain the urban forest. The students will also recognize the many benefits an urban forest provides and will become important partners for future management efforts.